

## 4-2. AUX-7 AUXILIARY PROGRAM BOARD

The AUX-7 Auxiliary Program Board is an accessory which allows the programming of up to eight 500 kHz ranges and/or eight fixed channels. These channels are selected by the front panel AUX PROGRAM switch, which applies 5 volts to pins 1-8 of the board for channel selection. All eight channels are identical in operation, so the following discussion for channel 1 can be applied to any channel.

Channel 1 is selected by applying 5 volts to pin 1 of the AUX-7 via the front panel AUX PROGRAM switch. This voltage is applied to pin 1 of the channel range module and to the anode of CR101 through R101. R101 sets the current through CR101, while R101 and C101 form an rf decoupling network. The current through CR101 effectively grounds one end of C102 and C103, thus enabling the channel 1 crystal (if installed).

The RTM-7 and RRM-7 range modules are diode arrays arranged in such a manner that pin 1 is connected to the anode of all diodes. The cathodes of the diodes are connected to module pins 2 through 14. Thus, when 5 volts is applied to pin 1,

approximately 4.3 volts will appear at all other pins of the module which have not been removed during range programming. In this manner, BCD data is supplied to the Digital Control Module for band and range control. Band information is present on AUX7 pins 9 through 12, and range information is found on pins 15 through 22.

When the TR-7 is placed in the FIXED mode, 10 volts is applied to pin 25 of the AUX-7. This voltage is applied through L101 (for rf decoupling) to the anode of CR109 thus enabling the fixed oscillator output, pin 24. At the same time, 10 volts is supplied to Q101, the fixed crystal oscillator stage, and Q102, the fixed output buffer stage, allowing these stages to operate. The output of the buffer (Q102) is routed through an attenuator consisting of R115, R116, and R117 to the anode of CR109, from which it is connected through the switching network on the parent board to the translator module in place of the PTO signal.

The only alignment required in the AUX-7 is the setting of C103, C106, C109, C112, C115, C118, C121, and C124, which are provided to set the eight fixed channel crystals exactly on frequency.

### NOTES:



## AUX-7 AUXILIARY PROGRAM BOARD

REF DES	DESCRIPTION	PART NO.
C101	Capacitor, Disc, .01 $\mu$ F + 80%, 25 V	3161500
C102	Capacitor, Disc, 27 pF $\pm$ 5%, NPO	3160650
C103	Capacitor, Variable, 5-20 pF	3205375
C104	Capacitor, Disc, .01 $\mu$ F + 80%, 25 V	3161500
C105	Capacitor, Disc, 27 pF $\pm$ 5%, NPO	3160650
C106	Capacitor, Variable, 5-20 pF	3205375
C107	Capacitor, Disc, .01 $\mu$ F + 80%, 25 V	3161500
C108	Capacitor, Disc, 27 pF $\pm$ 5%, NPO	3160650
C109	Capacitor, Variable, 5-20 pF	3205375
C110	Capacitor, Disc, .01 $\mu$ F + 80%, 25 V	3161500
C111	Capacitor, Disc, 27 pF $\pm$ 5%, NPO	3160650
C112	Capacitor, Variable, 5-20 pF	3205375
C113	Capacitor, Disc, .01 $\mu$ F + 80%, 25 V	3161500
C114	Capacitor, Disc, 27 pF $\pm$ 5%, NPO	3160650
C115	Capacitor, Variable, 5-20 pF	3205375
C116	Capacitor, Disc, .01 $\mu$ F + 80%, 25 V	3161500
C117	Capacitor, Disc, 27 pF $\pm$ 5%, NPO	3160650
C118	Capacitor, Variable, 5-20 pF	3205375
C119	Capacitor, Disc, .01 $\mu$ F + 80%, 25 V	3161500
C120	Capacitor, Disc, 27 pF $\pm$ 5%, NPO	3160650
C121	Capacitor, Variable, 5-20 pF	3205375
C122	Capacitor, Disc, .01 $\mu$ F + 80%, 25 V	3161500
C123	Capacitor, Disc, 27 pF $\pm$ 5%, NPO	3160650
C124	Capacitor, Variable, 5-20 pF	3205375
C125	Capacitor, Mica, 500 pF $\pm$ 10%, DM-15	3170420
C126	Capacitor, Mica, 210 pF $\pm$ 5%, DM-15	3170230
C127	Capacitor, Disc, .01 $\mu$ F + 80%, 25 V	3161500
C128	Capacitor, Disc, .01 $\mu$ F + 80%, 25 V	3161500
C129	Capacitor, Disc, .01 $\mu$ F + 80%, 25 V	3161500
C130	Capacitor, Disc, .01 $\mu$ F + 80%, 25 V	3161500
C131	Capacitor, Disc, 100 pF $\pm$ 10%, X5F	3161070
C132	Capacitor, Tantalum, .22 $\mu$ F $\pm$ 10%, 35 V	3183100
CR101	Diode, 1N4148	3020090
CR102	Diode, 1N4148	3020090
CR103	Diode, 1N4148	3020090
CR104	Diode, 1N4148	3020090
CR105	Diode, 1N4148	3020090
CR106	Diode, 1N4148	3020090
CR107	Diode, 1N4148	3020090
CR108	Diode, 1N4148	3020090
CR109	Diode, MPN3404	3020265
L101	Choke, 270 $\mu$ H, MUD271	3520590
Q101	Transistor, 2N3563	3030060
Q102	Transistor, 2N3563	3030060
R101	Resistor, Carbon Film, 1.0 K $\Omega$ $\pm$ 5%, 1/4 W	3220160
R102	Resistor, Carbon Film, 1.0 K $\Omega$ $\pm$ 5%, 1/4 W	3220160
R103	Resistor, Carbon Film, 1.0 K $\Omega$ $\pm$ 5%, 1/4 W	3220160
R104	Resistor, Carbon Film, 1.0 K $\Omega$ $\pm$ 5%, 1/4 W	3220160
R105	Resistor, Carbon Film, 1.0 K $\Omega$ $\pm$ 5%, 1/4 W	3220160
R106	Resistor, Carbon Film, 1.0 K $\Omega$ $\pm$ 5%, 1/4 W	3220160
R107	Resistor, Carbon Film, 1.0 K $\Omega$ $\pm$ 5%, 1/4 W	3220160
R108	Resistor, Carbon Film, 1.0 K $\Omega$ $\pm$ 5%, 1/4 W	3220160



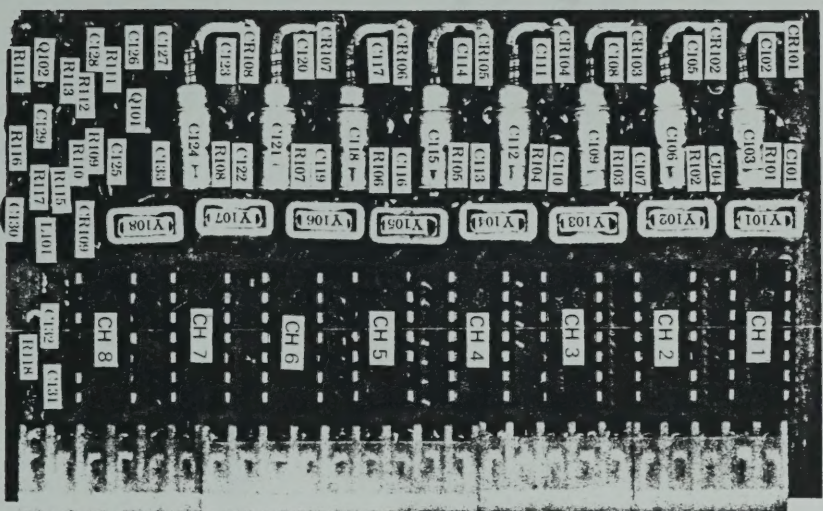
REF DES	DESCRIPTION	PART NO.
R109	Resistor, Carbon Film, $18\text{ K}\Omega \pm 5\%$ , $1/4\text{ W}$	3220255
R110	Resistor, Carbon Film, $47\text{ K}\Omega \pm 5\%$ , $1/4\text{ W}$	3220285
R111	Resistor, Carbon Film, $1.0\text{ K}\Omega \pm 5\%$ , $1/4\text{ W}$	3220160
R112	Resistor, Carbon Film, $2.7\text{ K}\Omega \pm 5\%$ , $1/4\text{ W}$	3220195
R113	Resistor, Carbon Film, $2.7\text{ K}\Omega \pm 5\%$ , $1/4\text{ W}$	3220195
R114	Resistor, Carbon Film, $180\text{ }\Omega \pm 5\%$ , $1/4\text{ W}$	3220070
R115	Resistor, Carbon Film, $100\text{ }\Omega \pm 5\%$ , $1/4\text{ W}$	3220055
R116	Resistor, Carbon Film, $10\text{ }\Omega \pm 5\%$ , $1/4\text{ W}$	3220005
R117	Resistor, Carbon Film, $100\text{ }\Omega \pm 5\%$ , $1/4\text{ W}$	3220055
R118	Resistor, Carbon Film, $100\text{ K}\Omega \pm 5\%$ , $1/4\text{ W}$	3220315
	Socket, Crystal	3282020
	Socket, I.C.	3282104

#### NOTES:









R	R101	R102	R103
C	C101	C102	C103
Y	Y101	Y102	Y103

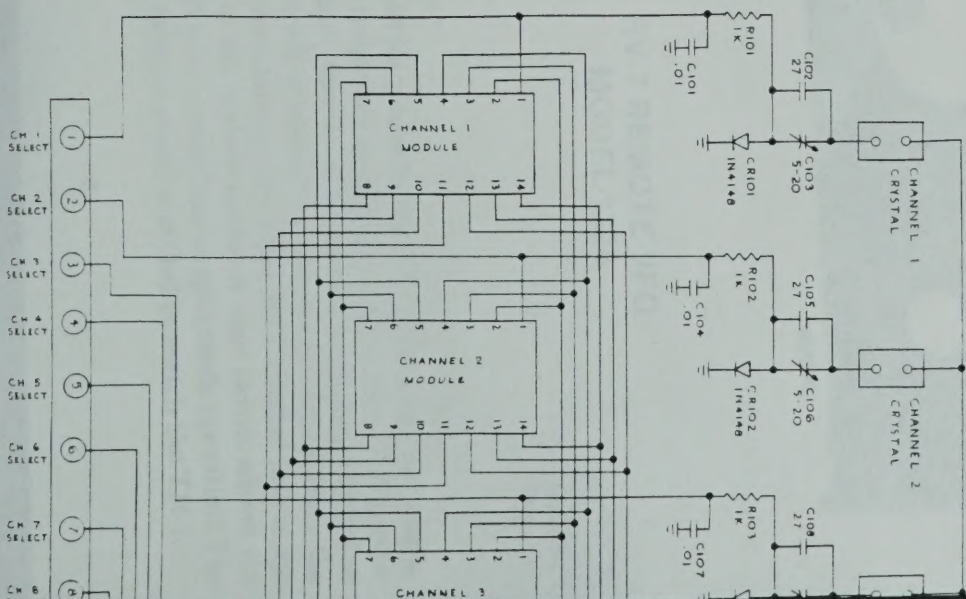


Fig. 4-3 AUX-7 Board Pictorial



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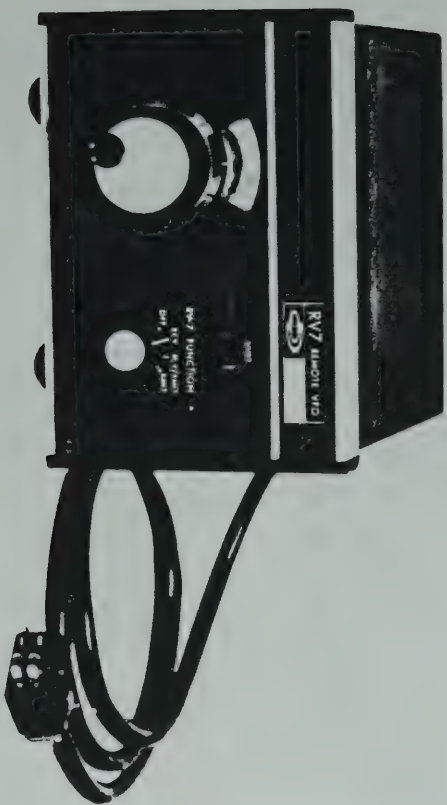


## RV-7 REMOTE VFO MODEL 1338

### General Description

The RV-7 is designed for use with the TR-7 and offers the operator a high degree of frequency control flexibility. The RV-7 can be employed for transmit, receive or transceive frequency control or can be turned off to allow transceive frequency control from the TR-7. For added convenience, the TR-7 RIT control line is applied to the RV-7 in the receive mode. A spot switch allows the RV-7 and TR-7 PTOs to be zero beat in split mode operation. The unit is housed in a cabinet which is styled to match the TR-7.





## Installation

To install the RV-7, simply connect the control cable to the 8 pin connector located on the rear of the TR-7. A 4 foot cable is provided for ease of location by the operator. See the TR-7 manual for the location of this connector.

## Operation

The RV-7 has three controls: the main tuning dial, the function select control and spot switch.

The main tuning control determines the frequency of the VFO and is calibrated in exactly the same fashion as the transceiver VFO. The RV-7 function control has four positions: OFF, RCV, RCV/XMIT, and XMIT. The green LED indicates when the RV-7 is controlling the frequency of the TR-7.

In the *OFF* position, the transceiver will transceive normally using the internal PTO.

In the *RCV* position, the green LED will light in receive, indicating that the RV-7 PTO is enabled. It will extinguish in transmit. In this position, the RV-7 controls only the received frequency. The PTO in the TR-7 controls the transmit frequency.

In the *RCV/XMIT* position, both the transmit and receive frequencies are determined by the RV-7. The TR-7 PTO is disabled. The green LED will light indicating that the RV-7 has control both in transmit and receive.

In the *XMIT* position, the RV-7 controls only the transmit frequency. The receive frequency is determined by the TR-7 PTO. The green LED will light only when the TR-7 is in transmit.

The *SPOT* button is used for zero beating the RV-7 PTO with the TR-7 PTO. When the SPOT switch is depressed, the green LED will light indicating the RV-7 PTO is enabled. Be sure when using the SPOT button that the RIT is off. The RIT sensitivity between the PTOs may not be equal leading to errors in the zeroing of the two PTOs. When in SPOT, some spurious signals will be created, be sure to pick the loudest, widest signal when zeroing the two PTOs. The TR-7 will not transmit with the SPOT switch depressed.



The RV-7 will be checked and aligned at the factory for a nominal fee if there is no evidence of tampering. Transportation charges are extra. Any necessary repairs will be made on a time and materials basis. Please write or call the factory for authorization before returning your unit for alignment or service. Address your requests for authorization to:

## Alignment

The schematic diagram illustrates the transmitter circuit, which includes a PTO (Pilot Tone Oscillator) section and an RF (Radio Frequency) section. The PTO section features a PTO LAMP, a MU-271 tube, and a 100 ohm resistor. The RF section includes a 2N3904 tube, a 2N3683 tube, and a 2N3683 tube. The circuit is powered by a 13.6V MU-271 tube and a 10V IN4740A diode. The RF section is also equipped with a 10K resistor, a 10K resistor, and a 10K resistor. The circuit is designed to operate at 10V and 10K.



### 4-3. NB-7 NOISE BLANKER

The NB-7 Noise Blanker Board is designed for use in the TR-7. Unlike noise clippers or limiters commonly found in communication equipment, this is an advanced noise blanker which mutes the receiver for the duration of the noise pulse. Between noise pulses full receiver gain is restored, and receiver AGC is affected only by the desired signal and not by noise. The NB-7 is most effective on strong, periodic noise impulses such as automobile ignition noise and LORAN.

#### 4-3.1 CIRCUIT DESCRIPTION

This noise blanker system is composed of the three major networks described below. Refer to the schematic diagram (figure 4-6) to follow this circuit description.

#### 4-3.2 TRANSMIT PATH

In transmit, diode CR815 is turned on with +10T via RFC812 and RFC813 from pin 37. The 5.645 MHz double sideband transmit signal is fed to the output coax connector through C833, CR815 and C838. When CR815 is on, CR814 will be reverse biased, thus holding the receive path off.

#### 4-3.3 RECEIVE PATH

In receive, diode CR814 is turned on with +10R via RFC810 and RFC811 from pin 24. The receive signal is applied to pin 22 and passes through the blanking gate comprised of T810, CR812, CR813, and T811, then through C830, CR814 and C838 to the output coax connector. C844 provides input matching. When CR814 is on, CR815 will be reversed biased, thus holding the transmit path off.

#### 4-3.4 NOISE PROCESSOR

The Noise Amplifiers consist of Q810, Q811, and U810 cascaded and tuned to 5.645 MHz by L810, L811 and L812 respectively. The output of the noise amplifier string is split by C828 to the pulse detector and C827 to the noise amplifier AGC circuit. Q812 and associated circuitry comprise the noise amplifier AGC detector and amplifier. The AGC voltage is applied to gate 1 of Q810 and Q811 via R826 and R829 respectively.

The pulse detector, CR811, responds only to the positive half of the amplified bipolar input pulse. The network of R839, C831 and C835 waveshape the pulse at the base of the pulse amplifier Q813. Again, the output pulse of Q813 is shaped by R847 and C840 and is applied to the gate driver, Q814. Resistor network R842 and R843 provide fixed reverse bias for the blanking gate. Q815 is a DC switch for +10R and +10NB.

#### 4-3.5 THEORY OF OPERATION

The 5.645 MHz receive signal, with noise pulses, is applied to pin 22. Tuned amplifiers Q810, Q811 and U810 amplify this low level signal up to a high level to drive the pulse detector CR811. This detector responds only to the positive going portion of each noise pulse from the output of U810. Following the detector is an RC network which shapes the pulses for driving the level shifter Q813. Again, on the output of Q813 is still another RC network for waveshaping. The gate driver transistor Q814 responds to the negative going pulse from Q813 which allows the blanking gate to turn off, thus muting the receive path and blanking the noise pulse.

Since the noise amplifiers run such high gain, Q812 and associated circuitry comprise an AGC loop to maintain a near constant output level to the detector. This allows detection and processing of very weak as well as very strong noise pulses without degrading the blanking action.



#### 4-3.6 NB-7 NOISE BLANKER-ALIGNMENT

The NB-7 is easily aligned via the following procedures:

Equipment Required: High Input Impedance VTVM

The following parts from the TR-7 Maintenance Kit:

- 1 6-pin extender card
- 1 4-pin extender card
- 1 tuning tool

- 1) Remove NB-7 per Installation instructions 1 through 4.
- 2) Carefully install extender cards making sure they properly match the connectors on the NB-7 and the pins in the TR-7 card cage.
- 3) Connect coax from IF Selectivity card to the coax receptacle on top of the NB-7. Note if coax will not reach - Remove IF Selectivity card and cut wire tie on coax to facilitate connection of coax.
- 4) Turn TR-7 on and depress calibrator switch. Tune in calibrator signal. Put Mode switch in CW, Band switch at 14 MHz.
- 5) Refer to figure 1 and connect VTVM to test pad. Depress NB switch to activate Noise Blanker.
- 6) Tune L810, L811 and L812 for maximum DC voltage.
- 7) Remove VTVM and turn off TR-7.
- 8) Remove NB-7 and extender cards.
- 9) Reinstall NB-7 as per Installation steps 5 through 9.

#### NOTES:



## NB-7 NOISE BLANKER

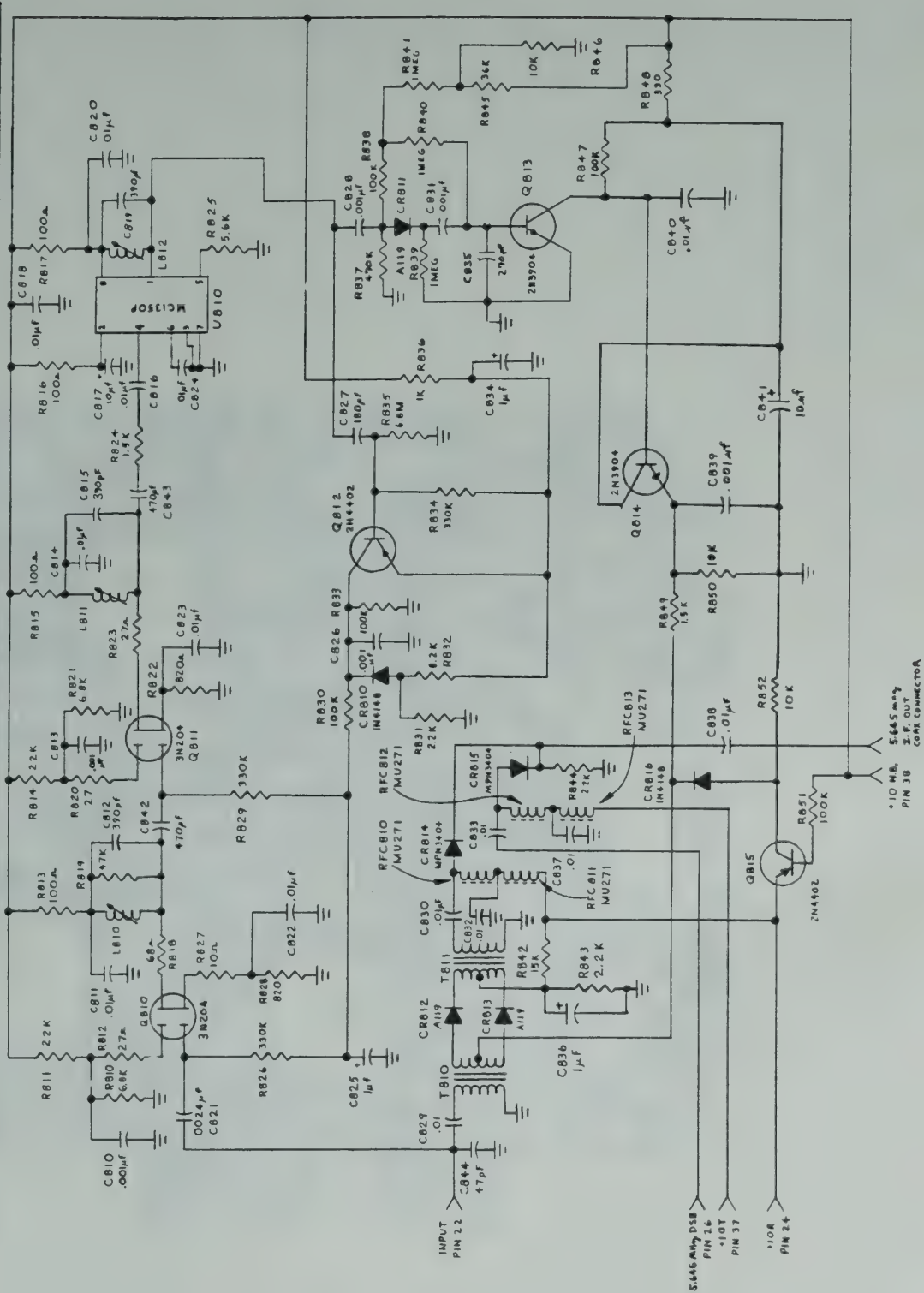
REF DES	DESCRIPTION	PART NO.
C810	Capacitor, Disc, .001 $\mu$ F $\pm$ 20%, Z5U	3161380
C811	Capacitor, Disc, .01 $\mu$ F $\pm$ 20%, Z5U	3161520
C812	Capacitor, Mica, 390 pF $\pm$ 5%, DM-15	3170370
C813	Capacitor, Disc, .001 $\mu$ F $\pm$ 20%, Z5U	3161380
C814	Capacitor, Disc, .01 $\mu$ F $\pm$ 20%, Z5U	3161520
C815	Capacitor, Mica, 390 pF $\pm$ 5%, DM-15	3170370
C816	Capacitor, Disc, .01 $\mu$ F $\pm$ 20%, M25V	3161500
C817	Capacitor, Tantalum, 10 $\mu$ F $\pm$ 20%, 25 V	3183030
C818	Capacitor, Disc, .01 $\mu$ F $\pm$ 20%, M25V	3161500
C819	Capacitor, Mica, 390 pF $\pm$ 5%, DM-15	3170370
C820	Capacitor, Disc, .01 $\mu$ F $\pm$ 20%, M25V	3161500
C821	Capacitor, Disc, .0024 $\mu$ F $\pm$ 20%, Z5U	3161440
C822	Capacitor, Disc, .01 $\mu$ F $\pm$ 20%, Z5U	3161520
C823	Capacitor, Disc, .01 $\mu$ F $\pm$ 20%, Z5U	3161520
C824	Capacitor, Disc, .01 $\mu$ F $\pm$ 20%, M25V	3161500
C825	Capacitor, Tantalum, 1 $\mu$ F $\pm$ 20%, 35 V	3183010
C826	Capacitor, Disc, .001 $\mu$ F $\pm$ 20%, Z5U	3161380
C827	Capacitor, Mica, 180 pF $\pm$ 5%, DM-15	3170180
C828	Capacitor, Disc, .001 $\mu$ F $\pm$ 20%, Z5U	3161380
C829	Capacitor, Disc, .01 $\mu$ F $\pm$ 20%, M25V	3161500
C830	Capacitor, Disc, .01 $\mu$ F $\pm$ 20%, M25V	3161500
C831	Capacitor, Disc, .001 $\mu$ F $\pm$ 20%, Z5U	3161380
C832	Capacitor, Disc, .01 $\mu$ F $\pm$ 20%, M25V	3161500
C833	Capacitor, Disc, .01 $\mu$ F $\pm$ 20%, M25V	3161500
C834	Capacitor, Tantalum, 1 $\mu$ F $\pm$ 20%, 35 V	3183010
C835	Capacitor, Mica, 270 pF $\pm$ 5%, DM-15	3170280
C836	Capacitor, Tantalum, 1 $\mu$ F $\pm$ 20%, 35 V	3183010
C837	Capacitor, Disc, .01 $\mu$ F $\pm$ 20%, M25V	3161500
C838	Capacitor, Disc, .01 $\mu$ F $\pm$ 80%, M25V	3161500
C839	Capacitor, Disc, .001 $\mu$ F $\pm$ 20%, Z5U	3161380
C840	Capacitor, Disc, .01 $\mu$ F $\pm$ 20%, Z5U	3161520
C841	Capacitor, Tantalum, 10 $\mu$ F $\pm$ 20%, 25 V	3183030
C842	Capacitor, Disc, 470 pF $\pm$ 20%, Z5U	3161350
C843	Capacitor, Disc, 470 pF $\pm$ 20%, Z5U	3161350
C844	Capacitor, Disc, 47 pF $\pm$ 5%, Z5U	3160840
C844	Capacitor, Disc, 47 pF $\pm$ 5%, Z5U	3160840
CR810	Diode, 1N4148	3020090
CR811	Diode, AA119/1N541	3020040
CR812	Diode, AA119/1N541	3020040
CR813	Diode, AA119/1N541	3020040
CR814	Diode, MPN3404	3020265
CR815	Diode, MPN3404	3020265
CR816	Diode, 1N4148	3020090
L810	Coil, B4408-1	B4408-1
L811	Coil, B4408-1	B4408-1
L812	Coil, B4408-1	B4408-1
Q810	Transistor, 3N204	3040110
Q811	Transistor, 3N204	3040110
Q812	Transistor, 2N4402	3030120
Q813	Transistor, 2N3904	3030105
Q814	Transistor, 2N3904	3030105
Q815	Transistor, 2N4402	3030120



REF DES	DESCRIPTION	PART NO.
R810	Resistor, Carbon Film, 6.8 K $\Omega$ $\pm$ 5%, 1/4W	3220220
R811	Resistor, Carbon Film, 22 K $\Omega$ $\pm$ 5%, 1/4W	3220260
R812	Resistor, Carbon Film, 27 $\Omega$ $\pm$ 5%, 1/4 W	3220020
R813	Resistor, Carbon Film, 100 $\Omega$ $\pm$ 5%, 1/4 W	3220055
R814	Resistor, Carbon Film, 22 K $\Omega$ $\pm$ 5%, 1/4W	3220260
R815	Resistor, Carbon Film, 100 $\Omega$ $\pm$ 5%, 1/4 W	3220055
R816	Resistor, Carbon Film, 100 $\Omega$ $\pm$ 5%, 1/4 W	3220055
R817	Resistor, Carbon Film, 100 $\Omega$ $\pm$ 5%, 1/4 W	3220055
R818	Resistor, Carbon Film, 68 $\Omega$ $\pm$ 5%, 1/4 W	3220045
R819	Resistor, Carbon Film, 47 K $\Omega$ $\pm$ 5%, 1/4W	3220285
R820	Resistor, Carbon Film, 27 $\Omega$ $\pm$ 5%, 1/4 W	3220020
R821	Resistor, Carbon Film, 6.8 K $\Omega$ $\pm$ 5%, 1/4W	3220220
R822	Resistor, Carbon Film, 820 $\Omega$ $\pm$ 5%, 1/4 W	3220145
R823	Resistor, Carbon Film, 27 $\Omega$ $\pm$ 5%, 1/4 W	3220020
R824	Resistor, Carbon Film, 1.5 K $\Omega$ $\pm$ 5%, 1/4W	3220175
R825	Resistor, Carbon Film, 5.6 K $\Omega$ $\pm$ 5%, 1/4W	3220215
R826	Resistor, Carbon Film, 330 K $\Omega$ $\pm$ 5%, 1/4W	3220340
R827	Resistor, Carbon Film, 10 $\Omega$ $\pm$ 5%, 1/4 W	3220005
R828	Resistor, Carbon Film, 820 $\Omega$ $\pm$ 5%, 1/4 W	3220145
R829	Resistor, Carbon Film, 330 K $\Omega$ $\pm$ 5%, 1/4W	3220340
R830	Resistor, Carbon Film, 100 K $\Omega$ $\pm$ 5%, 1/4W	3220315
R831	Resistor, Carbon Film, 2.2 K $\Omega$ $\pm$ 5%, 1/4W	3220190
R832	Resistor, Carbon Film, 8.2 K $\Omega$ $\pm$ 5%, 1/4W	3220230
R833	Resistor, Carbon Film, 100 K $\Omega$ $\pm$ 5%, 1/4W	3220315
R834	Resistor, Carbon Film, 330 K $\Omega$ $\pm$ 5%, 1/4W	3220340
R835	Resistor, Composition, 6.8 M $\Omega$ $\pm$ 10%, 1/4 W	3220375
R836	Resistor, Carbon Film, 1 K $\Omega$ $\pm$ 5%, 1/4W	3220160
R837	Resistor, Carbon Film, 470 K $\Omega$ $\pm$ 5%, 1/4W	3220345
R838	Resistor, Carbon Film, 100 K $\Omega$ $\pm$ 5%, 1/4W	3220315
R839	Resistor, Carbon Film, 1 M $\Omega$ $\pm$ 5%, 1/4W	3220355
R840	Resistor, Carbon Film, 1 M $\Omega$ $\pm$ 5%, 1/4W	3220355
R841	Resistor, Carbon Film, 1 M $\Omega$ $\pm$ 5%, 1/4W	3220355
R842	Resistor, Carbon Film, 15 K $\Omega$ $\pm$ 5%, 1/4W	3220245
R843	Resistor, Carbon Film, 2.2 K $\Omega$ $\pm$ 5%, 1/4W	3220190
R844	Resistor, Carbon Film, 2.2 K $\Omega$ $\pm$ 5%, 1/4W	3220190
R845	Resistor, Carbon Film, 36 K $\Omega$ $\pm$ 5%, 1/4W	3220280
R846	Resistor, Carbon Film, 10 K $\Omega$ $\pm$ 5%, 1/4W	3220235
R847	Resistor, Carbon Film, 100 K $\Omega$ $\pm$ 5%, 1/4W	3220315
R848	Resistor, Carbon Film, 330 $\Omega$ $\pm$ 5%, 1/4 W	3220090
R849	Resistor, Carbon Film, 1.5 K $\Omega$ $\pm$ 5%, 1/4W	3220175
R850	Resistor, Carbon Film, 10 K $\Omega$ $\pm$ 5%, 1/4W	3220235
R851	Resistor, Carbon Film, 100 K $\Omega$ $\pm$ 5%, 1/4W	3220315
R852	Resistor, Carbon Film, 10 K $\Omega$ $\pm$ 5%, 1/4W	3220235
RFC810	Choke Assy., 270 $\mu$ H, MUD271	3520590
RFC811	Choke Assy., 270 $\mu$ H, MUD271	3520590
RFC812	Choke Assy., 270 $\mu$ H, MUD271	3520590
RFC 813	Choke Assy., 270 $\mu$ H, MUD271	3520590
T810	Toroid, 266CT125/4C4	3522110
T811	Toroid, 266CT125/4C4	3522110
U810	Integrated Circuit, MC1350P	3040110



R	811	827	818	813	819	824	822	823	815	834	824	816	817	838	840	841	846
	810	826	820	843	842	851	820	832	849	850	835	836	837	825	847	845	848
	829	821	825	836	811	822	833	842	813	814	815	818	819	820	821	822	823
C	810	821	825	836	811	822	833	842	813	814	815	818	819	820	821	822	823
	810	821	825	836	811	822	833	842	813	814	815	818	819	820	821	822	823
	810	821	825	836	811	822	833	842	813	814	815	818	819	820	821	822	823
L	810	821	825	836	811	822	833	842	813	814	815	818	819	820	821	822	823
	810	821	825	836	811	822	833	842	813	814	815	818	819	820	821	822	823
	810	821	825	836	811	822	833	842	813	814	815	818	819	820	821	822	823



4-08194000

Fig. 4-6 NB-7 Board Schematic



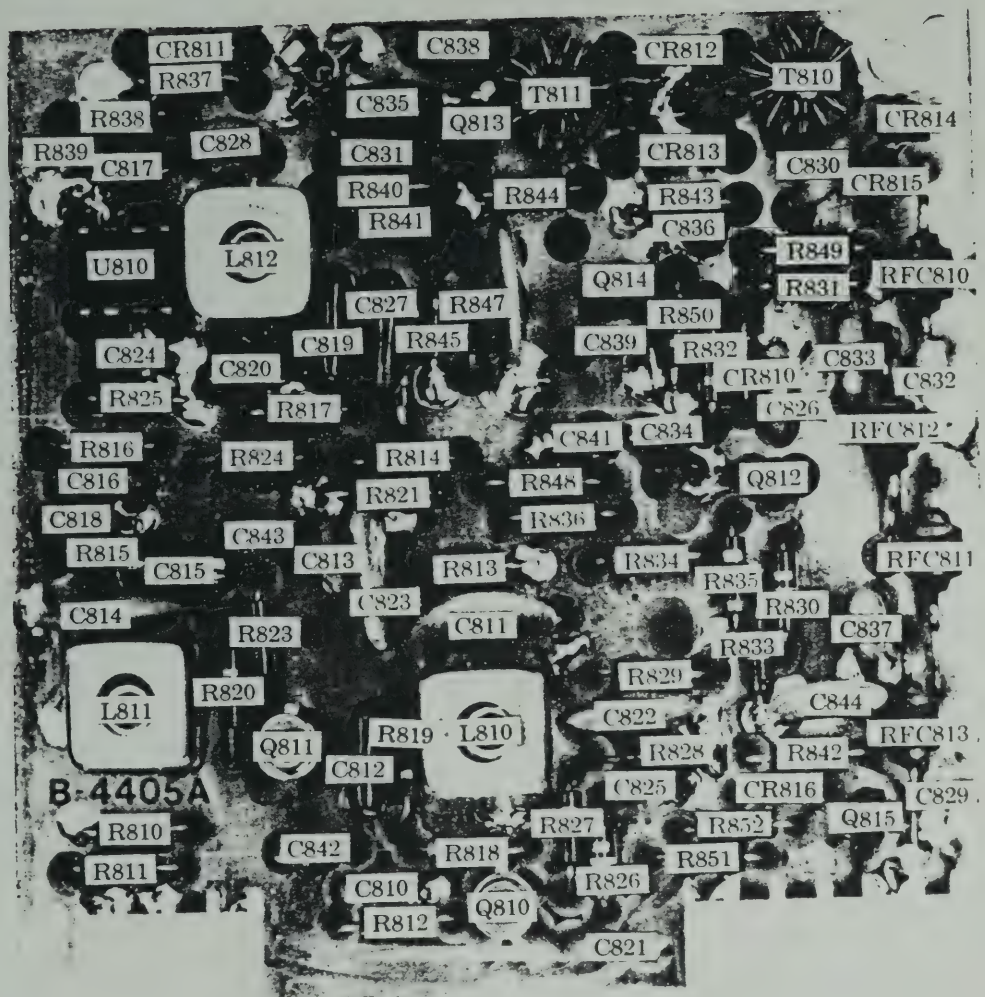


Fig. 4-5 NB-7 Board Pictorial

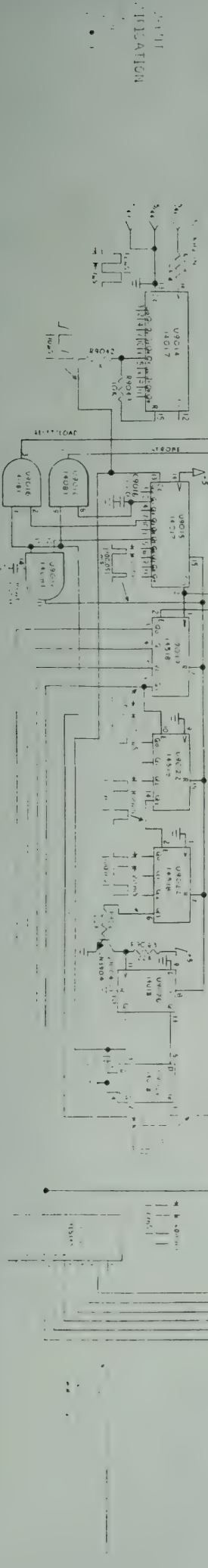
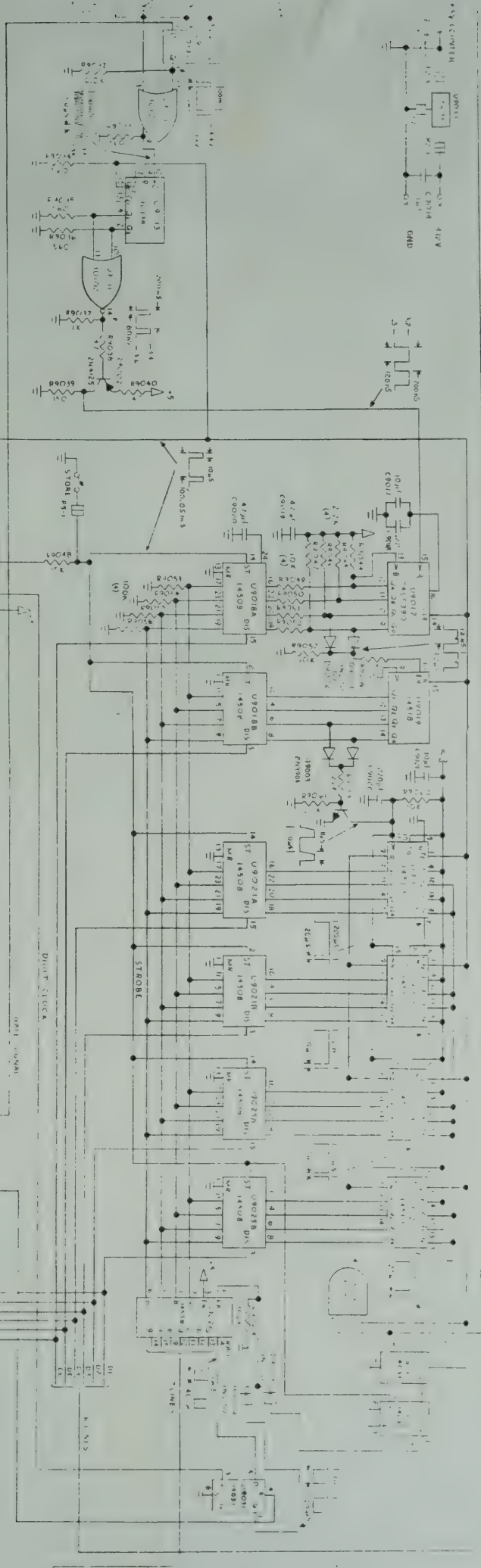






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ALL WAVEFORMS TAKEN WITH  
R-7 TUNED TO 1.250 MHZ.

SEQUENT  
IDENTIFICATION

$\frac{4}{\pi} \frac{f}{A} \approx 11.6$

